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ABSTRACT

This essay presents some of the possibilities for doing systematic quantitative research in the field of African public administration and reviews some of the methodological problems involved. The authors argue that quantitative research is especially desirable because of the gains to be achieved in precision, reliability, comparability, and new insight. A study of productivity in public administration is suggested as a useful starting point. Such a study would meet the demand for usefulness made by civil servant administrators and, at the same time, would expand the boundaries of knowledge and theoretical power. The possibilities of productivity research are illustrated by considering two hypothetical African agricultural marketing boards. (Author/DN)

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Discussion Paper No.110

METHODOLOGICAL NOTES ON QUANTIFICATION, PRODUCTIVITY AND GROUPS IN ADMINISTRATIVE RESEARCH

By

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and

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EA 003 682

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In this essay we wish to present some of the possibilities for doing systematic quantitative research in the field of African public administration and to review some of the methodological problems involved. We are convinced that quantification is desirable even in the early stages of a new field of inquiry and that the benefits in the use of quantitative methods in the area of African public administration are likely to be especially great.

I

Very little quantitative work has been done anywhere in Africa in the field of public administration. The major published work is Morroe Berger's Bureaucracy and Society in Modern Egypt.[1] V. Subramaniam has underway a study of the social background of Zambian higher civil servants.[2] Goran Hyden has a book in draft on government involvement in the co-operative movement in Kenya.[3] Several pieces of research have been completed or are in progress on agricultural extension organizations.[4] There may be a few other studies of which we are not aware. But the total amount of quantitative work is limited, and most areas of inquiry have received no attention.

Many students of African public administration would argue that the poverty of our current knowledge makes quantification undesirable at this stage. They hold that our greatest immediate need is a collection of studies which provides an overview of the shape of our subject. A quantitatively detailed description of one aspect of public administration may preclude our gaining adequate insight into the dynamics and the unexpected features of the whole. Associated with this argument would be one which pointed out that we can measure only phenomena which we already know are present. Too early quantification could thus restrict us to our current, as yet inadequate and largely Western, state of insight.

The case against "premature" quantification is a powerful one. We believe, however, that these are many overriding

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The case against "premature" quantification is a powerful one. We believe, however, that there are many overriding arguments on the quantitative side. First, unless we make some effort in the direction of measurement, our intuitions are likely to pass into the literature as if they were facts and our errors will become reified in other scholars' analyses.

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The long list of well-sounding academic insights that failed to meet the hard test of empirical verification in the American quantitative revolution should caution us that the danger of error is real. One of us is currently completing a study of the Kenya Government agricultural extension organization.[5] An orthodoxy of the Ministry of Agriculture hierarchy is that the untrained, less-informed extension workers avoid the better farmers, because these agents have little to teach them. The assumption is emminently reasonable, leading one to believe that the constituency of the untrained workers is the less advanced farmers. But empirical study of the characteristics of farmers whom extension workers actually visit showed that if anything the untrained, less-informed extension agents may be more, not less, likely to concentrate their attentions on the better farmers. Studies of welfare workers in the United States reveal a similar pattern[6] and once one knows the facts it is not too difficult to go on and explain them. The point, however, is that a false visitation pattern was firmly believed to be true, and a scholar who did not apply methods allowing for the falsification of the "conventional wisdom" would perhaps have continued to promote the incorrect assumption.

Second, insensitivity to unexpected or non-western variables is by no means inevitable in quantitative research. We agree that there is a danger that a hurried researcher, especially the expatriate one, will do a survey on a topic, measuring variables that are important in western theory and missing ones that are critical in the local environment. But the cure for this failing is careful exploratory research in the area one intends to study and a continuing sensitivity to the culturally unique features of the society in which one is working. Quantitative methods have not kept Goran Hyden from examining the impact of African social structures on the Kenyan co-operative movement.[7] Further, in his current study of managerial ideologies he is using survey research as a tool to establish the correctness of his ecological approach to the field of African administration.[8] The strongest case made anywhere in the literature for the cultural uniqueness of an administrative system is Michel Crozier's The Bureaucratic Phenomenon.[9] This study was grounded in quantitative research

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similar Tanzanian and Nigerian studies because of their all having been based on quantitative techniques.

Finally, the field of administrative organization is very rich in its availability of both theories for rigorous testing and western studies for careful comparison. Organization theorists such as March and Simon, sociologists such as Blau and Scott, and students of small groups such as Theodore Caplow present a vast number of propositions that can be adapted and tested in Africa.[10] The pay-offs to carefully conceived quantitative work are likely to be particularly great here, as the precision of the Western material enables one to become immediately involved in cross-cultural comparisons. Even within our still poor discipline of comparative public administration the ecologically based ideas of Fred Riggs need, as Warren Ilchman has argued, to be carefully tested before they are accepted and taught.[11]

II

Most of the Western studies of administrative organization have treated differences in productivity as the major factor to be explained. There are many good reasons for carrying this focus on productivity into the study of African public administration. One reason is that our primary interest in government organizations is in what they produce for the system. By and large our concern with issues such as political control of government bureaucracies, corruption and patterns of recruitment into the civil service is based on the presumed effect of these factors upon the creation and distribution of public benefits. Certainly the greatest number of Fred Riggs' propositions ultimately relate to the productivity of the civil service.[12]

Productivity studies are also considered desirable by our research subjects, the civil servants, and a focus on them thus may increase one's usefulness to the country in which one is working and at the same time ease one's problems of access and finance. Kenyan ministries, at least, have been employing foreign management consultants. A large number of external aid agencies are interested in evaluations of the productivity of projects they have financed and can sometimes

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The local academic thus generally needs to invest in one well-conceived research project before he can expect non-academic assistance with funding. Of course, the student should remain careful about the commitments he undertakes in such financing and be sure that he is not being exploited for legitimating purposes, thus denying his academic interests.

Access is easier than funding, though it is not without its problems. In a paper on agricultural extension Beverly Brock has expressed great scepticism that the African civil servant will allow his productivity to be studied.[13] She feels that the prospect of his inefficiency being revealed is too threatening to the civil servant. Our experience has been that this pessimistic prediction greatly underestimates the genuine interest of African civil servants in the productivity of their organizations. Few civil servants will welcome research which threatens to expose their own inadequacies, but they are frequently quite interested in studies that will analyse the shortcomings of their own subordinates and/or enable them to communicate their own operational problems to their superiors. As long as the researcher offers enough of these attractions to the civil servant, he is likely to get cooperation despite the presence in his research design of some threatening questions. Of course great tact and a clear commitment to protect the anonimity of one's respondents are necessary, but the pay-offs in cooperation can be very great. In such a situation one of us was able to use Government communication and authority channels for arranging interviews and to conduct them during working hours. More importantly, in the framework of a productivity study we were able to investigate otherwise forbidden topics, such as the tribal and status determinants of the social structure of the civil service.[14]

In expressing our interest in productivity studies we would like to emphasize that we believe these should be broadly conceived and should include consideration not only of how much benefit is produced but also of who gets it. Development studies have tended to be dominated by fairly narrow consideration of economic growth or productivity. There is great need for sensitivity to non-economic benefits and to the patterns of distribution of benefits. Such interests are fitted in fairly easily when responding to demands for more traditionally conceived productivity research. Doing so gives

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III

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We can illustrate the possibilities of productivity research by considering two hypothetical agricultural marketing boards. Such parastatal organizations are quite common in Africa. They usually are involved in the purchase, transportation, final processing, and overseas sale of a particular crop and are customarily characterized by a politically appointed board, an administrative cadre, and a number of semi-skilled employees. To first consider the efficiency criterion of productivity, we can easily imagine a situation in which one marketing board is found to have a proportionately much more expensive administrative apparatus than the other's. In other words, after we have subtracted the costs of processing (which are not likely to be comparable, as different crops have different processing technologies), the overhead of one marketing board represents a greater percentage of its gross sales than does that of the other. A number of interesting hypotheses might be advanced to account for the observed difference in performance. The workers in the more productive board are more committed to the welfare of the farmers they serve while those in the other see their work only as a job. There is a much greater degree of harmony and comraderie among the employees of the efficient board. The less productive board is characterized by a highly differentiated task structure, which has proved inflexible, while the other has a less specialized set of roles and has been adaptable in the face of new marketing conditions. The growth rate of the less productive marketing board has been extremely rapid and thus disruptive to its efficiency whereas the more efficient board has enjoyed a steady and manageable rate of growth. The less efficient board is operating with a crop of which there is an international surplus but for which there is not yet a world quota system. Such a quota agreement is expected in the next few years, and the board is trying to expand its country's share of the international market in that crop so as to improve its future bargaining position. This board is therefore aiming for quantity and is willing to sacrifice efficiency in the short term, whereas the other one already has a quota and is able to concentrate on efficiency under stable conditions. And so one might go on.

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Studying differences in the impact on income distribution of two boards would involve a different set of hypotheses. We might find that one board provides its services more effectively, or at lower cost, to small farmers while the other works to the relative benefit of plantation growers.

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It might be that one of the boards draws its semi-skilled employees from the families of the small farmers and that the consequent identification of the employees with this group leads to better services for them. Other hypotheses would be ones such as the following: workers in the plantation oriented board find that shortcomings in services are much more visible when they are experienced by large growers, who move in the same social circles as their superiors, and the workers consequently feel under much greater pressure to perform well for these clients. Plantation owners have devised a stable majority coalition to control one board whereas alliances are shifting on the other board and leave the large growers in a weaker position. One board has taken a policy decision to favour plantations, believing that their efficiency will lead to a more rapid growth in national income. The other favours small growers as a way of redistributing wealth. Or, finally, the small growers for one crop are important politically to the group governing the country while those from the other largely support the opposition. The Government thus applies more pressure on one board to favour small holder interests than it does on the other.

Considering the efficiency and the distrubutional policies of these two marketing boards illustrates the variety of hypotheses which are often advanced to account for differential productivity and differential consequences for the citizens. Indeed, in each case there are five separate hypotheses and in each case there are five research strategies thereby indicated. A useful way in which to review potentials and problems in quantitative research on administrative productivity is to consider each of these hypotheses, and particularly to ask about conditions appropriate (and therefore inappropriate) for introducing survey research techniques.

A brief overview of our intent is in order. In the hypotheses attempting to account for the comparative efficiency of the two marketing boards as well as the hypotheses relevant to the different distributions of benefits there is one important commonality. In each instance the marketing board along with its administrative cadre and workers is the unit of analysis. That is, it is a group and not an individual which the researcher sets out to explain.

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The illustrative hypotheses direct attention to what are often called unit or group properties, that is, to attributes which describe or otherwise characterize a collectivity rather than an individual. These unit properties have been named as follows: Distributional, Relational, Structural, Integral, and Contextual.[15] We will apply this nomenclature here in order to emphasize the benefits of quantitative research which has

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the administrative agency or bureau as the unit of analysis. Let us consider the hypotheses in sequence.

1. a) A marketing board is more efficient if its workers and staff are committed to the welfare of the farmers they serve.

   b) A marketing board is more likely to equitably allocate rather than concentrate its benefits if its workers are recruited from the families of peasant farmers.

Both hypotheses involve research about the distribution of certain traits within the administrative agency. Is there more commitment among the workers of one marketing board than among the workers of the other? Is the composition of one agency weighted more heavily toward the peasant farmers than the composition of the other? Social class composition or the distribution of an attitudinal factor such as "commitment" are both characteristics of the administrative agency itself, in the present case of the marketing boards.

What are called "distributional properties" of a group are obtained by performing a mathematical operation on some attribute of its members. This is so common in administrative research that we often fail to recognize that a statement or proposition is actually about the group rather than the individual. One author writes about Kenya that "five short months after independence, six of the seven civil secretary (provincial commissioner) posts were held by Africans."[16] Here a proportion is being used to describe the process of Africanization and, by comparing it to a previous proportion, to show the pace of the Africanization program. Another author reports, also about Kenya, that "As late as 1968 the average age of all permanent secretaries was only 39, and of provincial commissioners 40."[17] Here a measure of central tendency, a mean or a median, is used to characterize a part of the civil service, a characterization subsequently applied in analysis about the frustrations (also a distributive property) of younger recruits into the service.

The members of any group are individually characterized by age, years of training, level of education, length of service, race, and so forth. Whenever the group is described with reference to such demographic characteristics of its members, we say that a distributional property has been identified. And as our illustrative hypotheses [illegible]

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The members of any group are individually characterized by age, years of training, level of education, length of service, race, and so forth. Whenever the group is described with reference to such demographic characteristics of its members, we say that a distributional property has been identified. And as our illustrative hypotheses made clear, groups can be described with reference to the attitudinal traits of members. It is not uncommon to encounter sentences such as the following: "there was widespread resentment by civil servants against many ministers for their inadequate defense of the service" or "this reverence for regulations creates in some civil servants a tendency to regard themselves

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merely as instruments for putting the regulations into effect".[18] Terms such as "resentment" or "reverance" identify traits of individual administrators, but terms such as "widespread" or "some" indicate that these traits are distributed in such a manner as to affect the performance of the civil service itself.

The advantages of survey techniques are readily apparent to the scholar whose hypotheses lead him to consider the distributional properties of the administrative agencies he is studying. Surveys allow him to identify the traits of each member of the agency (or a large enough sample to characterize the agency) so that, at the analysis stage, he can calculate proportions, measures of central tendency, or measures of dispersion. These measures in turn are used as unit or group properties which allow for testing propositions about the comparative efficiency or the distributional policies of, say, marketing boards.

In the examples given, a survey could be conducted to see if the distribution of "commitment to the well-being of the farmers" vs. "this is just a job" did differentiate the two marketing boards. This same survey would also permit comparing the two boards as regards the class origins of their workers, and thus lead to a test of the hypothesis about the redistribution of wealth.

2. a) The efficiency of a marketing board is influenced by the extent of harmony and comraderie among its employees, with more harmonious relations bringing about more efficient operations.

   b) The large farmers and plantation owners will receive a disproportionate share of the benefits if they maintain close social relationships with board executives.

Both hypotheses involve research about the <u>relationships</u> which characterize the respective marketing boards, one set of relationships referring to those which hold within the administrative agencies and the other referring to those which hold between the agency, or an important unit of it, and the client. When, for instance, we say that there is more harmony among the employees of one board and greater tension among the employees of the other, we are characterizing administrative groups in terms of their relational properties. And again when we say that the executives and (some of) the clients are

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From the point of view of research strategy it is necessary to realize that relational properties cannot be investigated by concentrating on the isolated individual. Harmony, tension, friendship patterns, and so forth are not attributes of an individual, but rather are attributes of the interaction between

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or among individuals. It frequently is necessary to understand a pattern of relationships which hold within an administrative agency if the investigator is to make sense of different rates of productivity or different distributional policies.

Consider the following propositions: "Excessive reliance upon formal authority of the office may lead to cold, rigid relationships which impede task accomplishment. On the other hand, the highly personal leader may become too closely involved in the work of his subordinates, thereby losing his ability for critical judgment and effective command in situations which require these."[19] Here it is the relationships which characterize interactions between officials at different status levels which are thought to account for "task accomplishment" or "effective command." The important fact to note is that phenomena such as "cold, rigid relationships" vs. "personal... involved" ones are characteristics of different administrative units. That is, there are prevailing patterns of relationships in any group, and these prevailing patterns do have a bearing on performance.

It is equally evident that different types of relationships characterize the interaction between an agency and its clients (or superiors), and that these relationships can have a bearing on such significant issues as performance or favoritism. One student of the impact of foreign aid in developing countries notes that "Harmony can obtain between an aid agency and the local government, but tensions can also arise in such relationships and in those which obtain among donor agencies,"[20] and then goes on to suggest that relationships of harmony or tension can have considerable consequences for the amount and utilization of foreign aid. In our illustrative hypothesis, friendship patterns between the plantation owners and the high status board executives are considered relevant to how the board allocates the funds and other benefits under its control.

Survey techniques are quite clearly relevant to identifying relational properties, and thus to testing hypotheses which make assumptions about the relations which hold within or between administrative agencies. One widely used technique is known as "sociometric research".[21] The members of a group are asked to name their friends, whom they go to for advice, who they most respect, [illegible]

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study of administrative agencies.

The important distinction between distributive and relational properties of groups is that the former are reducible to the traits of individuals whereas the latter are minimally reducible to interactions between at least two (and often many more) members of the group. The important commonality between the two properties is that they are attributes of groups and they can be investigated by the intelligent application of survey methodologies.

3. a) Marketing boards vary in their effectiveness because the relatively small amount of role specialization in one agency allows for flexible adjustment to changing market conditions whereas the very great extent of functional differentiation in the other agency impedes flexibility.

   b) A faction representing the interests of plantation owners controls the decision-process of the one board whereas the other board is characterized by changing alignments on each individual issue which calls for a decision.

These hypotheses identify what are commonly called structural properties of groups. Functional differentiation, for example, refers to the extent of task specialization in the organization, or the degree to which different roles involve different types of duties. The larger the ratio of functionally distinct roles to the total number of organizational roles, the more functionally differentiated the organization is. An organization with a very large amount of role specialization is likely to effectively discourage its members from responding to new tasks outside of their closely defined roles. A board with less functional differentiation is therefore likely to enjoy greater adaptive capacity.

The second hypothesis also identifies a structure; in this case it is the decision-structure of a board of directors. Decision-structures are common to all groups which regularly take votes or otherwise come to decisions about policy issues. In some other research with which one of the authors has been involved, 82 local governing councils were studied.[22] It was possible to classify these councils in terms of three types of decision-structures: unipolar councils are those in which unanimous voting on most issues was prevalent, a situation

changing market conditions whereas the very great extent of functional differentiation in the other agency impedes flexibility.

b) A faction representing the interests of plantation owners controls the decision-process of the one board whereas the other board is characterized by changing alignments on each individual issue which calls for a decision.

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minority faction, much as is true of Parliaments when party affiliation determines voting patterns. In the illustrative hypothesis suggested above, the board with a "nonpolar" decision-structure practices a more quitable distribution policy because each issue is decided in terms of arguments and pressures brought to bear by different types of constituencies. The second board more nearly resembles the "bipolar" decision-structure in that a permanent majority faction can continually outvote the remainder of the members, and since in our hypothetical case this faction favors the large growers, benefits are disproportionately directed to them.

The analysis of structural properties is indispensable in the study of administration. Indeed, terms such as hierarchy, status, role, differentiation, and organization are used in definitions of bureaucracies and bureaucratic processes. All of these terms point toward the structure of the civil service or any agency in it. Perhaps most familiar to students of administration is the "authority structure" by which is commonly meant the arrangements which determine which role-occupants issue what sorts of commands and which role-occupants obey what sorts of commands. When we read that authority is concentrated or dispersed, is integrated or segmented, is secure or fragile, we recognize that a structural property is being described.

Structures are interesting to us because they define the flow of transactions and interactions in a bureaucracy. When, for instance, the status structure is described the investigator knows something about patterns of deference relationships. When the communication structure is described the investigator knows something about patterns of information flow. When the authority structure is described the investigator knows something about patterns of directives and compliances.

The structural properties of a group can be more or less lasting. The most permanent features of the group, especially of agencies such as marketing boards and other administrative units, are usually identified in its organizational chart, which is actually a representation of certain structural properties of the group. The lines and boxes so familiar to the reader of organizational charts simply identify the prescribed authority or communication relationships expected to

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Not all structures have been formalized and thus pictured in organization charts. Certainly one would never find

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decision-structures outlined in the handbook of procedures. Yet decision-structures are very real and often very permanent properties of groups which continually must choose among policy alternatives. And to know that a marketing board, for instance, has majority and minority voting blocs is to know something of more than passing interest about how it conducts its business.

There are also what we frequently term "informal structures" which refer to the patterned interactions which are not sanctioned in official procedures but which nevertheless characterize most groups. This is what is meant by such comments as "the real way to get something accomplished around here is to work through the administrative secretary" or "important messages come directly from the field and usually by-pass the provincial headquarters." These comments identify leadership structures or communication structures which are often more critical to the functioning of the administrative apparatus than are the formalized structures of authority or communication.

Although group structures tell us a great deal about how people in groups relate with each other, it is important to distinguish between relational and structural properties. Though this distinction is not always easy to make, one difference is that whereas relational properties can be reduced to dyads (that is, to pairs of individuals) structural properties cannot be similarly reduced. That is, it can be said of a group that it is generally harmonious without every member necessarily being cooperative and friendly with every other member. But it cannot be said of a group that its authority structure is pyramidical without making an assumption about the standing of every member (role-occupant) as regar... the exercise of authority. Another way in which to consider the difference between relational and structural properties is to think in terms of role-socialization. When a new recruit joins an agency he often is instructed, formally or informally, in the duties and privileges associated with his role as well as the duties and privileges associated with other roles in the organization. In effect he is being introduced to the structure of the group, or at least to some parts of it. Relations, in contrast, are not "taught" the new recruit, though due note may be made that a spirit of cooperation and

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Structural properties can be identified in a variety of ways, including simply looking at the organizational chart or asking a well-placed informant to describe the communication network or the status system or the authority roles. But survey techniques are not without usefulness even in studying structural properties. Thus, for instance, if no formal records are kept of voting alignments in a committee or council or board, it may be necessary to ask people with whom they regularly side if the research design calls for identification of factions. Or perhaps the investigation cannot easily proceed unless the "informal" structures of a group are identified. Again survey techniques are relevant, as when the members of an agency are asked to describe the flow of information in the group. It may not be possible to decide whether the actual communication structure is a fork (everyone sending messages to a central position which then communicates them to superiors) or a wheel (everyone communicates with everyone else), for instance, without asking persons about the number of messages they send and receive.

Sociometric analysis can be used to describe structural as well as relational properties. For instance, many of the administrative units in which we are interested are made up of "equals" in that no one has formal authority over anyone else. At best, many committees, boards, councils, and other groups have a nominal chairman who convenes meetings but who has no special authority over other members. Yet we know that groups nearly always evolve some type of leadership structure. Sociometric techniques are valuable in describing the leadership structure of a "committee of equals." The researcher might ask each member to tell who in the group he most respects, who he turns to for advice, who provides the ideas which seem to lead to action, and so forth. The responses to such questions would permit construction of the leadership structure. Thus, perhaps, one leader emerges for certain issues (matters of public relations) and other leader emerges for other issues (matters of internal importance to the group). There would be a dual-leadership structure. And so forth.

We simply wish to stress that survey methodologies should not be ignored even if the study advances hypotheses about

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We simply wish to stress that survey methodologies should not be ignored even if the study advances hypotheses about the structural properties of groups. Indeed, being indifferent to a survey of the members may lead to wrong conclusions if it is the case that the formal and visible structural properties are very different from the informal and hidden ones.

4. a) The growth rate of one marketing board and its auxilliary staff has been too rapid to allow the

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working out of effective procedures whereas the pace of growth of the other board has been more tempered and thus less disruptive.

b) The distributional patterns are the result of deliberate policy choices by the boards, one believing that economic growth will be fostered if large owners are favored by board policies and the other believing that growth as well as welfare considerations dictate a more equitable distribution of benefits.

The growth rate of an agency or its policies are what we term integral properties of the group. Such properties cannot be reduced or otherwise decomposed with reference to individual attributes of group members. They "belong to" the group and only to the group. Consider a few other examples. We refer to how old an agency is, that is, the length of time it has been in existence. This property of the agency is independent of any attributes of its members; it is an integral property. The aggregate size of an agency or its budget or the charter which brought it into existence are integral properties.

It is a common observation about African civil services that under Colonial rule they were "systems of control" but that since Independence they are being converted into "systems of development." Although authors who argue this point are not always careful to specify just what they have in mind, it seems fair to infer that they are describing the basic policy orientation which differentiates the civil service before and after Independence. Such would be an integral property, especially if it is the result of legislation which attaches one or the other general set of obligations to the civil service as a whole. Other types of group properties of course would be affected. Thus, for instance, the proportion of law enforcement officers to development technicians (distributional property), the appropriate conduct when dealing with constituencies (relational property), and the command hierarchy (structural property) would be affected if basic policy changes were made. But the policy to "maintain order" or to "develop" would itself be an integral property of the civil service.

Further examples of integral properties are an agency's criteria for recruitment and promotion, its development plan, its rules for making decisions (for instance, a committee rule

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Further examples of integral properties are an agency's criteria for recruitment and promotion, its development plan, its rules for making decisions (for instance, a committee rule to be guided by a plurality rather than a majority), or its "boundaries" (as when a development corporation is restricted by law to the rural sector). Criteria, plans, rules, and boundaries are things which characterize the group and not the individuals in the group, though of course they influence individual behavior and relations.

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For the most part survey techniques are not too useful if the research design advances propositions about the integral properties of the agencies. In the examples we gave, the growth rate of a marketing board would be measured by calculating, from the public record, the percentage increase in staff between two chosen points in time; the policy of a board would either be observed in their written records or deduced from the actual statutes and enactments delivered by the board.

There is an exception, however, which suggests one way in which survey techniques might be used even in studying integral properties. This exception requires making a distinction between interviewees as "respondents" and as "informants." Much as an anthropologist uses a well-placed informant to describe village life, a student of administration can use a well-placed informant to describe an agency or a bureau. That is, the interviewees would not be asked about their age but the age of the agency, not be asked about their training but about the training program of the agency, not be asked their own views but about the policy of the agency, not be asked about their recruitment but about the standards of recruitment of the agency, and so forth.

There are dangers to this procedure; not all "informants" are equally well informed (or equally open or honest). But using more than one informant and cross-checking the information can often detect biases and misinformation. Another check is to ask an informant a few questions about group properties on which reliable independent data are available, and then match his information against the independent evidence.

Dangers notwithstanding, certain integral properties can be identified only with quasi survey methods. Many integral properties are not part of the public record, or are difficult and expensive to discover. The goals of an agency set forth in enacting legislation, for instance, may be a pale (or even misleading) reflection of the operating policies. Reliable statistics on the size, wealth, or growth rate of a bureau may not be available. In many instances then, the informant may provide better and cheaper data than alternative sources.

5. a) The absence of a world quota system leads to (temporary) inefficiency for one marketing board as it concentrates on expanding the nation's share of the international

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5. a) The absence of a world quota system leads to (temporary) inefficiency for one marketing board as it concentrates on expanding the nation's share of the international market in this particular crop.

   b) Political pressures deriving from calculations about constituency support for the government in power dictate the different patterns of distribution between the two boards.

Very often we set out to explain the performance of administra-

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tive agencies in terms of the larger environment of which they are a part.[23] When some characteristic of that environment is attributed to the agency we say that is becomes a contextual property. Thus, in the first illustrative example, the two marketing boards differ as regards the international market in which they sell their crops. Whether the crop is governed by a world-wide quota system is part of the economic environment of the boards and can be used in analysis, that is to explain differences in performance, by converting it into a contextual property. The second example turns attention to the political environment in order to explain different patterns of distribution. The "context" established by the political links between small farmers and the politicians differs for the two boards, and thus can become a variable in analysis.

Contextual properties are common in development administration research. The very label "development" implies that the administrative apparatus differs depending on whether its national environment is that of an industrialized and "modern" society or that of a non-industrial, more traditional society. We also refer to contextual properties when we say that an agency is located in the rural sector, that it carries out its task in a hostile environment, that it is constrained by the prevailing political ideology, or that it is affected by the society's class structure.

The following proposition illustrates how a contextual property of the Kenya civil service is used in analysis:

> Because of widespread unemployment or underemployment and an educational system geared to produce white collar workers, there are many more claimants for posts than posts themselves. Thus there is political pressure from outside the bureaucracy to increase the size of the administration. And civil servants themselves, at least at the top of the hierarchy, are responsive to these demands because their own power is increased as the size of their ministries increases.[24]

The rapid growth rate of the civil service (integral property) occurs because unemployment levels and the educational curriculum (contextual properties) lead to political pressure on the civil servants (relational property) to which some are responsive (distributional property), at least those at the top of the civil service hierarchy (structural property). Analysis depending on the multiple consideration of various types of group properties is not uncommon, as the reader

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Assigning contextual properties to an administrative unit is comparatively straightforward. Survey methods will seldom be necessary, though there may be times when an informant can be used. There are two things to bear in mind about

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contextual properties. First, it is important not to assume that contextual properties have particular effects on the operation of the administrative groups. The effect is a matter for empirical investigation and not a priori assumption. To classify marketing boards with regard to aspects of their international markets is the first step in analysis, not the final step. It still remains to be shown whether the absence or presence of a quota system is related to performance in the manner suggested by the hypothesis.

Second, what are called contextual properties for the lower level unit can be distributive, relational, structural, or integral properties of the higher level unit. Consider a research design which intended to compare the extension service of the Ministry of Health and the Ministry of Agriculture in a developing country. The distributional properties (median educational level of all employees), the relational properties (patterns of cooperation throughout the ministries), the structural properties (lines of authority), and the integral properties (size of the ministry) of the respective ministries would all be contextual properties of the sub-unit known as the extension service.

The reader may now have asked two questions: Why all the fuss about group properties? Even if we recognize the significance of group properties, why all the fuss about an elaborate nomenclature and classification scheme?

The answer to the first question is the easier. Groups are very often the important units of action in any administrative system. Indeed, this is true of the entire political system. Courts, review panels, legislative committees, city councils, juries, working parties, voluntary associations, are just a few among the very many collectivities which have powers of government. And we talk about how efficiently such groups carry out their tasks and about who benefits and who loses because of their decisions. One reason for a fuss about group properties then is simply because groups are real units of action in political life. Moreover, even if the investigator is more interested in the individual administrator or Member of Parliament or trade union leader or political party member, very much of what he might wish to understand about the behavior of individuals is a result of the groups to which they belong.

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To recognize that groups are important units of administration action in their own right and that characteristics of

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administrative units have a bearing on individual behavior does not answer the second question; why all the fuss about terminology and classification? This is a fair question, and we readily acknowledge that scientific explanation can sometimes be impeded by jargon and hyper-sensitivity to distinctions which, in the actual world, are difficult to make. Certainly our intent is not to suggest that the student of administration should constantly point out in his writing that this is a relational property and this a structural property, etc.

The most important benefits of a classification such as the one suggested here have to do with research design. Decisions about the type of data to collect, about the sampling strategy to adopt, and about the form of data collection are bound to differ depending on the type of properties identified in the research hypotheses. Only a few ramifications of this observation can be suggested here, but anyone who has conducted research on administrative processes well knows the lament -- "if only I had asked...".

If the researcher expects relational properties such as cohesion or tension to be relevant to administrative performance then it is necessary to design a study which permits him to locate individuals in terms of the relations they have with other group members. A failure at the design stage will result in no measure of "cohesion" or "tension" at the analysis stage. Similarly, if he expects that communication patterns or authority structures are critical variables, then it is necessary to design a study which will produce measures that differentiate agencies in terms of such structural variables.

The following paragraph is taken from an essay by R. J. Ouko, Minister of Finance and Administration for the East African Community; it outlines an important proposition relevant to development administration.

> The spirit of the civil service is also affected by the presence of expatriate officers. Many of these have set an example of hard work and devotion to duty and identify strongly with the public service, but the tendency of some to operate outside the formal chain of command can create difficulties. African officers become frustrated when they see the ease with which some expatriate officers get access to top officials in contravention of the established code. This type of administrative behavior has a high cost in lower morale among African officers. The advantages gained through such informal administrative relationships

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At this point in our discussion it is not necessary to point out that the elaborate proposition outlined in this paragraph depends on assumptions about various types of group properties. It is relevant to underscore that this proposition could not be tested unless the research design permitted measures of

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these various properties, and it is our argument that a clear identification of the different types of properties is a preliminary step to such measurement. The actual wording of items in an interview or questionnaire depends on a clear view of what type of property is being measured. The formally established channels of communication are a structural property, and from a study of these one would learn which levels of civil servants lack the formal right of direct access to, say, the Permanent Secretary. To ascertain this structural property, one might treat the higher civil servants as informants and ask them, "Which positions in this Ministry carry with them the right of direct access to the Permanent Secretary?" Then taking those levels without such access, one would want to know whether expatriates actually do have direct contact with the Permanent Secretary and whether this access is greater than that of African officers operating at the same level. Access is a relational property. To study it we would ask each civil servant, expatriate and African, "Are you ever able to communicate about your work directly and personally with the Permanent Secretary or do you find it necessary always to go through someone else? (If the former) How often would you say that you are able to communicate directly and personally with the Permanent Secretary?" As a check on this information, the Permanent Secretary might be asked, "Which members of this Ministry often communicate with you personally and directly about their work? In addition, which members of this Ministry ever communicate with you personally and directly about their work?" By using the structural property of formal channels as an indicator of prescribed distance from the Permanent Secretary, we next would have established whether expatriate and African officers do in fact tend to be different with respect to the relational property of access. From this point, we would then need to establish two distributional properties and one more relational one. The African officers would be asked "Do you feel that expatriates tend to have more direct access to the Permanent Secretary than African officers of the same formal rank?" and a question probing loyalty such as, "If you were offered a slightly better paying job in the private sector, do you think you would take it?" These questions would establish the distribution of a perception and an attitude among African

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of Africans and vice versa. Thus we see that an identification of the type of group property being investigated helps us to determine the individuals to whom a question is to be put, whether the interviewee is to be treated as an informant (when he can be mistaken) or as a respondent (when he cannot), and whether interviews are to be treated as single units (distributional properties) or as pairs (relational properties).

The utility of the five-part classification of unit properties is also seen when we consider sampling strategy. This is not the place for a complex review of sampling in survey research, but the previous discussion indicates that differing research questions call for different samples. At the outset the investigator must decide whether he wishes to sample administrators or administrative units, or to draw a multistage sample in which first units are selected and then some proportion of members within each unit. Analysis solely concerned with contextual or integral properties might only sample administrative agencies. Analysis wishing to consider distributive, relational, and structural properties would have to sample individuals within identifiable groups. Whether the total membership would be interviewed, or only a part of the membership, would depend on the size of the group as well as the type of property to be identified.[26] (Identification of most structural and relational properties in small groups requires interviews with all members of the sampled groups.) Pairs of individuals could also be sampling units, as in a study which wished to investigate relationships between expatriate technicians and their African counterparts.

Of course sampling decisions are made about data other than those collected from individuals. A study of communication structures might sample written messages or telephone calls which pass between local, district, and national offices. A study of administrative policy might sample directives or enactments. A study of administrative effectiveness might sample crop production or number of licenses awarded. But whether data are to be collected from individuals or from some form of document, it is still necessary to know whether the sampling unit is the agency itself.

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IV

Earlier we argued for a focus on productivity in the study of African public administration. We would like to return to that theme now and discuss the methodology of studying organizational productivity. We have delayed this topic to this point in order to take advantage of the

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typology of group properties which he have now set out. We want to suggest that in examining productivity, the student of public administration begin by identifying the unit of his analysis and, should this be a collectivity, the types of group properties with which he will be working. Further, given this frame of reference, we recommend that he look for several, partial, reliable indicators of organizational performance which are directly or closely connected with organizational behavior of the type identified and which can be measured easily enough so as to enable data collection on a large number of the units selected. We would like to illustrate these points by considering research on agricultural extension organizations in Africa.

First of all, it is almost impossible to be comprehensive in measuring the extent of a government organization's goal achievement. This impossibility is not due solely to the practical problems of measurement but also to the difficulty of ascertaining the exact goals that are being pursued. Most government statements of organizational goals have a studied vagueness about them. Consider for example the following portion of a statement on "Aims of the Extension Service" made in a recent Kenya Ministry of Agriculture working party report:

> The agricultural extension services should aim to give the farmer advice and services which enable him to run his farm and home business more successfully. In its orientation, the extension service should cover the whole range of farmers from the best to the poorest, with the special focus of extension in each District left to the discretion of the District Agricultural Committee...[27]

The central political issue--which types of farms are to benefit from agricultural extension--is effectively evaded and passed on to another set of committees, which will most likely also avoid it. The end result will probably be a continuation of providing the overwhelming bulk of services to the larger and more progressive farmers, who demand them and will put them to the most dramatically productive use. But it is difficult to be certain that those who made this statement were aiming at this result. Vagueness in goals enables civil servants to deal with demands at the level of individual decisions, where contradictory pressures can be

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sively the effectiveness of a government organization in meeting its goals. The most one can hope to do is to identify certain areas which are clearly relevant to assessing part of the organization's effectiveness and in which measurement is possible. One can then compare the organization with other similar ones (or units of the organization with one another) in terms of their relative performance in these areas. We may only be able to say, for example, that unit A helps the poor more than unit B without being certain which is the desired or even desirable policy outcome. Explaining the causes of difference between the two units is still rewarding.

Our experience is that the researcher will generally have to settle for several quite limited and partial measures of an organization's effectiveness. Attempts at comprehensive measurement are likely to be disappointing to the student of administration and may be completely unfruitful if he has not been careful to identify the units of analysis and types of group properties he wants to work with. This point can be illustrated by considering two pieces of research on agricultural extension conducted by economists. The first is R. G. Saylor's "A Social Cost/Benefit Analysis of Agricultural Extension Services in Selected Cotton Growing Areas of Western Tanzania."[29] At first examination cost/benefit analysis seems to offer a rigorous technique for obtaining an overview of the efficiency of an organization. One is not likely, however, to achieve the precision which the technique appears to promise. The various data available to Saylor, for example, were reasonably good and probably much better than what can usually be expected in developing nations. His task is also relatively simple: calculate all the costs to Government of the project and compare them with the increases in cotton income due to improvements in yields per acre. But Saylor is commendably honest about the variety of assumptions that could be made for this particular analysis (especially with regard to assumed increases in yield). Consequently, we are told that there are wide parameters on the stream of benefits, wide enough for us to consider the project a solid success under the optimistic ones and a marginal failure under the pessimistic ones. These wide margins of error would be crippling if it were important to classify a project or organization only as profitable or unprofitable. But wide parameters on the cost/

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not fundamentally upset the rank ordering of these units.

Thus from the point of view of the student of administration lack of precision is not the major problem with cost/benefit analysis. Rather it is that cost/benefit ratios are appropriate to study at levels of analysis and with types of group properties with which we only seldom want to work. Cost/benefit analysis measures the productivity of a project as a whole and thus is gauging the final impact of all the possible influences on the project. In a cotton project, for example, these would include peasant responses, soil character, international prices, the quality of agricultural research, the cotton marketing organization, and the agricultural extension organization, not to speak of other government bodies that might have been called upon to participate. If one were interested in assessing the productive consequences of differences in extension organization, one would have to sort through a large number of other, non-administrative causal variables before one got down to the impact of one's unit of interest. Once there, one would be dealing with the extension organization as a whole and would be unable to probe for differences in productivity within it. Furthermore, the kind of data one had would be largely appropriate only for the study of contextual and integral group properties. If one were interested in the study of whole extension projects and if one's hypotheses concerned variations, for example, in basic extension policies or in ties with other government organizations, cost/benefit analysis on a large number of extension projects would probably prove quite rewarding. The point is, however, that this level of analysis and these types of hypotheses are not common in organizational research and the student wants to be clear that this is where his interest lies.

The other example of an attempt to measure productivity comprehensively is to be found in the evaluation of Uganda's Extension Saturation Project by David Vail and E. R. Watts. The major part of Vail's research effort went into the collection of input and output data on a sample of farms, ultimately enabling him to put precise figures on the value of the change in output achieved. But Watts and Vail also did a less ambitious survey of farmers in four project and four control areas and thereby investigated the relative diffusion

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were able to reach basic judgments about the productivity of the project without reference to Vail's elaborate and precise data. (Of course Vail had other intellectual interests that made the input-output study valuable to him.) It is also worth noting that their evaluation is successful because they are able to point outside the focus of the Project itself to other areas that need attention. Had they wished to make it their primary conclusion that the information barrier had not been overcome in all project areas (as their data actually suggest), the fact that they had only studied the effects of four Project extension agents would have made it impossible for them to identify the extent of the failures and to analyse reliably their causes. The point we are trying to make is that a survey of the clients of an organization almost always will exhaust one's personal and financial capabilities before it has given sufficient data to analyse the nature and causes in variation in performance of the organizations (or within the organization) being studied.

Again the issue of the unit of analysis and the type of hypothesis is raised. If one wishes analytically to treat an organization as a uniform stimulus and to study variations in the response of the populace to this stimulus, then a client survey is most appropriate. Here one would be assuming that variations in organizational productivity are due to differences in its social environment (a contextual property) and one's sampling strategy would be directed toward getting a statistically adequate number of clients for each part of the range in client response. But if one is largely interested, as we are in this paper, in the organizational causes of variations in productivity, client surveys are generally inappropriate. This is not to say that they are logically incorrect. One of us once planned to study variations in civil servant productivity by interviewing a random sample of eight clients for each of a sample of extension agents.[31] But note that the real unit of analysis here is the extension agent, and clients are only being used to provide an estimate of agent effectiveness. In this sampling strategy we would have maximized the number of extension agents, even at the expense of lowering the reliability of our estimate of each's performance, because they would have been our unit of analysis. So a client survey is a logically feasible method of studying

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takes on a life of its own and forces out other considerations.

Because of the pitfalls of comprehensive measurement of productivity, we recommend that one work with partial measures that are fairly simple to make and which are as close to the level and type of organizational behaviour in which one is interested as is possible. Precisely because these indicators are partial, however, it is important that there be several and that they be reliable. Once stated, it is obvious that a factor which improves one aspect of job performance may not have the same effect on another aspect. But practically speaking, the point is often overlooked. We can give an example of the dangers from the study of the Kenyan agricultural extension organization. Two of the performance measures used are a test of the extension worker's technical information and an average of the number of farmers an agent saw on days which he devoted to farm visits. The information test was developed because it was known that not all extension agents are well-informed, and knowledge of the agricultural innovation to be defused is clearly a necessary (though not sufficient) condition for good extension work. The farmer visits measure was employed as an indicator of how hard the extension agent works. Kenyan extension work is primarily oriented to individual farmers and not to groups, but agents do have other official tasks to perform and the proportion of these to farmer visiting varies between agents. Therefore, by asking each agent to specify the days on which and the farmers which he had visited in the previous week and by then taking a daily average of farmers seen, we felt we were able to achieve a measure of work effort that was unbiased between different types of work assignments. The first point is that these two performance indicators, technical informedness and work effort, are unrelated to one another. The second point is that the senority of the extension agent is related to these two indicators in the oppostie directions. Analysis which assumed that either of these two indicators alone could serve as a surrogate indicator for total performance would lead to deceptive results.

A further problem concerns the choice of relatively reliable performance indicators. Two frequently used measures which we feel should be used with caution are supervisor

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A further problem concerns the choice of relatively reliable performance indicators. Two frequently used measures which we feel should be used with caution are supervisor ratings and morale. This point can be made by referring to David Kidd's study of agricultural extension workers in Western Nigeria. Kidd measured the technical informedness and morale of extension workers (knowledge test and job attitude) and in addition obtained supervisor and peer evaluationsof the same men. Kidd himself concludes that, "These findings tend to suggest that a man's peer members may be better able

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Intercorrelations Among Selected Performance Measures of Agricultural Extension Workers in Western Nigeria[32]

	1.	2.	3.	4.
1. Knowledge Test	X			
2. Peer Evaluation	.28[a]	X		
3. Supervisor Evlauation	.16	.13	X	
4. Job Attitude	.34[a]	.08	.01	X
5. Rank of Staff (X^2)	33.68[a]	1.92	8.97[b]	(neg)7.77[b]

a= statistically significant at the .01 level
b= statistically significant at the .05 level

to assess his abilities than his supervisors are. It also suggests that his superiors may be more inclined to evaluate men according to their job status."[33] The second point seems true more in comparison with peer evaluations than with the objective knowledge test when we examine the accompanying table. But it is true that supervisor evaluation was the only performance measure correlated with length of training.[34] Peer evaluations may be biased against rank, for status differentials are unpleasant, but supervisor ones are probably biased in favour of formal criteria of competence. It is therefore undesirable to use supervisor ratings alone in evaluating performance, and, if one is forced to do so, the analysis should take the probable biases carefully into account. R. K. Harrison's study on Nigerian extension organization uses supervisor ratings without attention to their problems.[35] This greatly limits the usefulness of what could otherwise have been a significant study. Another reason for not using supervisor ratings is that they are only valid for comparisons within the framework of each evaluator. The workers or work units of supervisor A cannot be ranked against those of supervisor B on the basis of A's and B's internal evaluations alone. As we are frequently most interested in precisely such comparisons, supervisor ratings have limited usefulness. The issue of the units to be analysed thus is raised again here.

Even more fundamental objections can be raised against using morale as an indicator of performance. Morale is one of the important causal factors associated with performance. But it does not always correlate with all aspects of performance, it may relate to other causes of good performance in quite

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Even more fundamental objections can be raised against using morale as an indicator of performance. Morale is one of the important causal factors associated with performance. But it does not always correlate with all aspects of performance, it may relate to other causes of good performance in quite different ways than does performance itself, and its measure is subject to severe biases. In the study of the Kenyan extension organization, morale was positively correlated with only one of the three objective indicators of performance (work effort r=.19, N=54, a controlled subsample). In Kidd's study in Western Nigeria, the rank of staff was positively

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correlated with their knowledge score but negatively related to their morale (see the above table). The same results were obtained in the Kenyan study. Finally, measurements of morale are very easily biased by feelings of insecurity on the part of the respondent, and such feelings are usually heightened by poor performance. Thus, in the Kenyan extension organization study, when we analysed that part of the sample in which workers attempted deceit about their work effort, morale was negatively correlated with the objective information test, and positively correlated with the reported level of work effort. Informedness and work effort were negatively correlated. The level of reported work effort is partly a result of insecurity in a situation where deception is possible. Thus insecurity was created by poor information test performance, leading to deception about work effort and morale and thus inflation of these indicators in these cases. When insecurity is instilled in the workers, morale measures are badly biased indicators of performance. This point must be stressed for good scholars have come close to this error. For example, R. G. Saylor administered a work satisfaction questionnaire to Tanzanian extension staff through official channels. He then writes,

> Inspection of the data reveals that the tendency is for the older and lower ranking bwana shambas (extension agents) to have higher mean scores on the OI (opinion index). ...One policy implication which might derive from this finding is that more attention to age may be profitable both in the initial hiring and in retraining schemes, as older workers appear to have greater enthusiasm for their work and may be more receptive to retraining. ...Finally, the scores of the FA's (the lowest cadre) may suggest against phasing this particular cadre of workers out of existence as currently planned.[36]

Such policy recommendations assume a) that the correlates of morale probably are positively correlated with performance and b) that the measure of morale has not been biased by the insecurity induced by an official questionnaire. The Kenyan study suggests that the balance of greater performance rests with the higher rank worker, leading to opposite conclusions to those of Saylor.[37]

When there is the possibility of deceiving the investigator about the level of performance achieved, we strongly recommend validity checks on a sample of the data. In the study of the

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When there is the possibility of deceiving the investigator about the level of performance achieved, we strongly recommend validity checks on a sample of the data. In the study of the Kenyan extension organization, staff were asked to name the farmers they had visited in the previous week, as we stated earlier. As these lists could be easily inflated by the respondent, we took a sample of farmers named by those staff who most aroused our suspicion and both checked their existence and whether the alleged visit had been made. The checking

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was not easy, as farmers are ready to impute a variety of motives to researchers. Some farmers would deny the incidence of an actual visit, believing that an appearance of neglect would be communicated to Government officers and bring more attention in the future. We also had to guard against cueing farmers, leading them to protect their local extension agent against "outsiders." Experience and skilled interviewers enabled us to overcome these problems, and we were able to discover that one interviewer, operating in one area, had received reliable responses while the other, working in another two districts, had been deceived with some frequency. The reliable responses were apparently achieved by the combination of a no-nonsense interviewer and a reassuring official introduction in the one district. We had an accommodating interviewer and poor introductions in the other two. In the latter cases, respondents seem both to have felt personally threatened at having their productivity tested by someone who might be from Ministry headquarters and to have been encouraged to deception by an unthreatening personality. Interviewing in a productivity testing situation seems to require very strong assurances that the results are confidential and are not being used officially (apparently best from the officials themselves) and interviewer cues that he is aware of the possibilities of deception and will not be fooled. In any case, tests of reliability enable one to <u>know</u> the meaning of one's data. Even when mixed reliability is found, interesting analyses can be made, as we have done here and above on the indicator of work effort.

We have written a great deal about errors to be avoided. It would be well to end this section on the measurement of productivity with a few positive suggestions. The first is that one become thoroughly familiar with the organization that one intends to study, with the views of those working in it about what are the elements of productive work, and with the nature of the goods and services produced. Once one has achieved this familiarity some indicators that looked good from the outside will be ruled out as inappropriate or complex, and others are likely to have been suggested. Most organizations have some rough ways of judging their performance, and with improvement, these methods can frequently be used. It is probably wise, however, to avoid using precisely the same

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biased if these are the officially observed aspects. Often governments collect statistics which could be used to judge performance but are not so used themselves or which are resistant to skewed performance. An example of the first would be crop statistics, which show changes in acreages of crops planted and of the yields per acre. An example of the second might be school examination results or statistics on miles of road built or maintained in conjunction with personnel employed. One must take care, however, that these statistics are accurate, for they often are not. Most of the local officials of the Kenyan Ministry of Agriculture reported that Tetu division near Nyeri had 100% acceptance of hybrid maize, whereas a sample survey of 100 farms showed one-third use of the innovation.[39]

Experience shows that one is generally wise to go for the indicators of performance that are simpler to measure, preferably using a sample of them to ease their shortcomings. Hursh, Roling and Kerr used quite a simple measure of extension productivity for their study in Eastern Nigeria. They took a sample of villages and ascertained how many of a number of broadly applicable agricultural programmes were present at all in each one. As these data were fairly simple to collect, they were able to devote most of their research to the characteristics of the villages and extension agents which might account for differences in adoption rates.[40] One can easily think of ways in which this indicator may misrepresent the full extent of extension effectiveness. But it is neither obviously biased nor so difficult to measure as to have overshadowed the rest of their investigation. As a result of their clarity of purpose and willingness to simplify, they came closer to meeting their theoretical objectives than have many of those who have measured the productivity of agricultural extension organizations.

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In concluding our essay, we restate our plea for starting the quantitative revolution in the field of African public administration. The gains to be had in precision, reliability,

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In concluding our essay, we restate our plea for starting the quantitative revolution in the field of African public administration. The gains to be had in precision, reliability, comparability and even new insight are great indeed. If we respond to the call for study of productivity made here, we can meet the demand of our civil servant counterparts for usefulness at the same time that we expand the boundaries of our knowledge and theoretical power. Ours is not a call for an undiscriminating acceptance of survey research. We have tried to lead away from some of the dangers of surveys and

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to point in the direction of the theoretically challenging possibilities of groups as units of analysis. It is very possible that the next decade of administrative research in Africa will see the wide application of survey techniques to the study only of individual administrators. At the end of the decade much information will have cumulated about correlations between demographic traits of administrators and their attitudes.--It is doubtful whether these correlations will much advance our knowledge about the performance of administrative units or the consequences of their actions for the distribution of benefits in society. For precisely this reason we have attempted to provide some practical notes on the methodology of studying productivity and administrative groups.

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FOOTNOTES

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2. V. Subramaniam, "The Social Background of Zambia's High Civil Servants and Undergraduates," University of East Africa Social Science Council 5th Annual Conference Proceedings Vol.IV, pp.1680-1695.

3. Goran Hyden, Efficiency Versus Distribution: The Politics of Co-operative Management in Kenya (Nairobi: Oxford University Press, forthcoming).

4. c.f. R.K. Harrison, Work and Motivation (Ibadan; Nigerian Institute of Social and Economic Research, 1969).
   G.D. Hursh, N.R. Roling, and G.B. Kerr, Innovation in Eastern Nigeria: Success and Failure of Agricultural Programmes in 71 Villages of Eastern Nigeria (East Lansing, Michigan: Department of Communication, Michigan State University, 1968).
   D.K. Kidd, Factors Affecting Farmers' Response to Extension in Western Nigeria, CSNRD-30 (East Lansing, Michigan: Consortium for the Study of Nigerian Rural Development, 1968).
   E.R. Watts, "Agricultural Extension in Embu District of Kenya," East African Journal of Rural Development (Vol.2, No.1, 1969). pp.63-78.
   B. Thodon van Velzen Statt Kulak and Peasant: An Arena Study (Leiden: Afrika-Studiecentrunt, no date).

5. c.f. D.K. Leonard, "The Work Performance of Junior Agricultural Extension Staff in Western Province: Basic Tables" (Nairobi: Institute for Development Studies, University of Nairobi, 1971).

6. P.m. Blau and W.R. Scott, Formal Organizations (San Francisco: Chandler Publishing Company, 1962), p.68.

7. Goran Hyden, op. cit.

8. Goran Hyden, "Management Ideologies in Kenya," (Nairobi: unpublished, 1971).

9. Michel Crozier, The Bureaucratic Phenomena (Chicago: University of Chicago Press, 1964).

10. J.G. March and H.A. Siman, Organizations (New York: John Wiley 1966).
    Blau and Scott, op.cit.
    T. Caplow, Principles of Organization (New York: Harcourt, Brace, and World, 1964).

11. W.F. Ilchman, "The Unproductive Study of Productivity," Comparative Political Studies (Vol.I, No.1, 1968) pp 227-249.

3. Goran Hyden, Efficiency Versus Distribution: The Politics of Co-operative Management in Kenya (Nairobi: Oxford University Press, forthcoming).

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11. W.F. Ilchman, "The Unproductive Study of Productivity," Comparative Political Studies (Vol.I, No.1, 1968) pp 227-249.

12. Ibid.

13. Beverly Brock, "The Sociology of the Innovator," (Paper presented to the East African Agricultural Economics Society Conference, 1969), p.12.

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14. D.K. Leonard, "The Social Structure of the Agricultural Extension Services in Western Province, Kenya," (forthcoming).

15. One of the authors of this paper has been involved in a study of small decision-groups in the United States (local city councils) which has applied the nomenclatures suggested in this essay. This work has been carried out jointly by Heinz Eulau and Kenneth Prewitt and will be published in Local Governance: Adaptations, Linkages, Policies (Indianapolis: Bobbs-Merrill, forthcoming). Early and extremely important work on unit propperties is associated with Paul Lazarsfeld and colleagues at the Bureau for Social Research, Columbia. A useful statement can be found in Paul F. Lazarsfeld and Herbert Menzel, "On the Relation Between Individual and Collective Properties," in A. Etzioni (ed) A Sociological Reader on Complex Organizations (New York: Holt, Rinehart and Winston, 1969), pp.499-516. In the classification worked out by Lazarsfeld, the term "analytic" is used in the way we use "distributional" and the term "structural" is used to refer to "relational and structural properties" and the term "global" is used to refer to "integral and contextual" in our usage.

16. John J. Okumu, "The Socio-Political Setting" in GoranHyden, Robert Jackson and John J. Okumu (eds.) Development Administration: The Kenyan Experience (Nairobi: Oxford University Press, 1970), p.37.

17. Colin Leys, "Recruitment, Promotion and Training," in ibid., p.136.

18. The first quotation is taken from Okumu, op cit., and the second Robert J. Ouko, "Personal Management" in ibid., p. 155.

19. Ouko, op cit., pp. 1963-4.

20. Robert Lacey, "Foreign Resources and Development," in ibid., p.79.

21. A useful discussion can be found in J.L. Moreno and H.H. Jennings, "Sociometric Measurements of Social Configurations," Sociometry Monographs, 3, 1945.

22. Heinz Eulau and Kenneth Prewitt, op cit. See also Heinz Eulau, "The Informal Organization of Decisional Structures in Small Legislative Bodies," Midwest Journal of Political Science, Vol. 13 (August, 1969), pp.341-66.

23. The collection of essays on Development Administration in Kenya includes an entire section devoted to "Environments of Administration" with chapter headings as follows, "The Socio-Political Setting", "The Economic Environment", and "Foreign Resources and Development", See Hyden, Jackson, Okumu, op cit.

24. Henry Bienen, "The Economic Environment," in ibid., p.61.

25. Ouko, op cit., p. 163.

26. A useful article on [illegible]

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24. Henry Bienen, "The Economic Environment," in ibid., p.61.

25. Ouko, op cit., p. 163.

26. A useful article on sampling strategies in the study of group properties is James S. Coleman, "Relational Analysis: The Study of Social Organizations with Survey Methods" in Etzioni (ed), op cit., pp. 517-527.

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